



REPORT

Town of Wellesley - Planning Department

To: Town of Wellesley Planning Board
From: Noise & Outdoor Lighting Study Committee
Date: December 29, 2014
Subject: Report on Noise & Lighting Problems and Issues

STUDY OVERVIEW

As part of the Planning Board's FY14-15 Work Plan, the Board endeavored to study the issue of excessive outdoor lighting in Town, expanded to also include the study of noise ("the Study"). The Planning Board appointed a Noise & Outdoor Study Committee ("the Committee") to conduct the Study, comprised of the following individuals:

Deborah Carpenter (Planning Board); replaced by Sara Preston (Planning Board)
Raina McManus (Natural Resources Commission)
Randy Becker (Zoning Board of Appeals)
Ingrid Carls (Design Review Board; Sheila Dinsmoor as alternate)
Laura Fragasso, Resident
Marie Cleary, Lieutenant, Police Department
Trevor Criswell, Energy Services and Planning Manager, Municipal Light Plant
Joe Murray, Project Manager, Facilities Maintenance Department
Ethan Parsons, Assistant Planning Director
Michael Zehner, Planning Director

The primary charge to the Committee was to identify problems and issues related to outdoor lighting and noise, along with policies and regulations to mitigate such negative effects. This memo is intended to identify the problems and issues identified by the Committee; additionally, the memo identifies items important to the future consideration of policies and regulations. The Facilities Maintenance Department contributed additional comments in a memorandum, which is attached herewith.

PROBLEMS AND ISSUES

The problems and issues identified by the Committee affect Wellesley and are more likely than not universal problems associated with excessive or unregulated noise and light. The problems and issues have been organized into three categories based on their effects: effects on *Human Health & Wellbeing*, *Energy*, and *Wildlife and the Natural Environment*.

Human Health and Wellbeing

Lighting

The use and enjoyment of residential property and nighttime safety for motorists and pedestrians is affected by light pollution, which the International Dark-Sky Association suggests has four components¹, as follows:

- Urban sky glow: brightening of night sky
- Light trespass: light where it is not intended, wanted or needed
- Glare: excessive brightness causing visual discomfort
- Clutter: bright, confusing, excessive lights

Lighting is not reviewed or regulated by the Town in single and general residential districts except under Large House Review or projects subject to Site Plan Review. Particular single and general residential uses in Wellesley are or might potentially be significant light polluters, such as sports courts and landscaping/decorative lighting, which are not reviewed or regulated except under Large House Review or other limited instances.

Light pollution occurs from lights mounted on buildings and within parking areas in non-residential areas and on non-residential properties within residential districts, including but not limited to signs, spotlights, and security lights. Light pollution affects human health and wellbeing in the non-residential areas as many residential areas are located within and surrounding non-residential areas, and light pollution is experienced throughout all areas of town. For example, glare, light clutter, and light trespass may affect motorists in any part of town. Light clutter is exacerbated by lack of comprehensive lighting design, including between public and private sectors. Further, urban sky glow and glare compromise enjoyment of the nighttime environment and may affect sleep patterns, leading to more serious health problems.

The American Medical Association has now called for a national effort on light pollution stating that “many species (including humans) need darkness to survive and thrive”, after they released a report explaining the adverse health effects of nighttime lighting.²

Noise

Gas powered leaf blowers are major noise generators (and polluters).

Music and announcements played over the public address (“PA”) systems at parks (Reidy Field, Sprague and the schools) can be a form of noise pollution. The Natural Resources Commission notes that it has received complaints about the music, which seems to be a recent occurrence. Certain noises are customary for certain uses while artificial and intermittent noise may be disruptive and annoying.

¹ IDA Practical Guide: PG 1: Introduction to Light Pollution. Downloaded from <http://darksky.org/education/quick-reference-materials> on November 3, 2014.

² <http://www.atmob.org/library/resources/AMA%20Health%20Effects%20Light%20at%20Night.pdf>

The emptying of trash dumpsters is often loud and done during early morning hours when people most value the quiet.

Energy

Lighting

Light pollution wastes energy. Dark sky fixtures, proper shielding, lower wattage lamps, timers, dimmers and sensors may be utilized to reduce costs and consumption while achieving desired lighting goals.

Noise

Gas powered leaf blowers, which are a significant noise generator, also have significant energy costs.

Wildlife and Natural Environment

Lighting

According to the NRC, light pollution interferes with parks and wetlands, affecting nocturnal hunting, birdsong, and vegetation. Many animals depend on darkness of night for food supply. Moths, an important food supply for other animals, are exhausting themselves around lights and dying earlier, sometimes prior to reproduction. Birds are having a hard time discerning dusk and dawn. Trees are dropping their leaves later in the season and as leaves absorb water and snow, this results in more limb breakage.

Noise

Gas powered leaf blowers, which are a significant noise generator, also contribute to greenhouse gases and dust/respiratory issues.

Wildlife can experience hearing loss or miss environmental cues and animal signals and experience physiological and behavioral effects resulting in the abandonment of territory and lost reproduction.

REGULATION AND POLICY CONSIDERATIONS

1. The Planning Board should propose an amendment to the Zoning Bylaw in order to address certain problems caused by outdoor lighting and noise. Currently there is no concerted regulation of outdoor lighting or noise in the Zoning Bylaw. Outdoor light and noise generators and uses of particular concern, whether public or private, include parking areas, signs, sports courts in residential districts, lights within proximity to roadways, 24-hour businesses, and security

lights. Consideration should be given to differences among zoning districts, uses, enforcement, existing regulations, abutting uses, integrated design with other light and noise generators, maximum lighting levels, time of day/night and year, and light color³. The Zoning Bylaw is an appropriate tool for controlling potential detrimental light and noise impacts associated with development. Further, the Board should prepare for artificial noise and light associated with emerging technologies, such as residential wind and solar energy. Proactive design standards and noise limits can help the Town avoid unwanted effects of these emerging technologies.

2. The Design Review Board and Zoning Board of Appeals, in conjunction with the Health Department, should consider the placement of dumpsters and the hours during which they may be serviced during Site Plan Review and other project reviews.
3. The Natural Resources Commission should examine its policy and enforcement on the use of PA systems at parks, working with the recreational programs in Town to determine appropriate uses of such systems.
4. The Natural Resources Commission should inspect and make appropriate changes to lights at the Hunnewell tennis courts and other multipurpose fields.
5. The Police Department should remain diligent about enforcing Article 49.34, *Restrictions on hours of certain commercial activity*, of the Town Bylaw.
6. Zoning inspection and enforcement are needed during non-business hours for illumination compliance.
7. Town boards and departments should follow the design review process laid out in Article 46, *Design Review Board*, of the Town Bylaw, for the installation or modification of light fixtures on any public way, on Town land other than cemeteries, and on Town buildings.

Staff note: The Facilities Maintenance Department submitted additional comments in the attached memorandum that expand on #8 below.

8. The Town's Municipal Light Plant, Facilities Maintenance Department, and Permanent Building Committee should establish standards and policies for the use, installation, and replacement of outdoor lighting on Town properties.
9. A Town board or committee should develop and distribute educational materials to businesses, institutions and residents regarding light and noise generators and alternative methods.

³ http://www.health.harvard.edu/newsletters/Harvard_Health_Letter/2012/May/blue-light-has-a-dark-side?utm_source=health&utm_medium=pressrelease&utm_campaign=health0512

NEXT STEPS

The Committee requests that the Planning Board direct the Planning Department Staff to develop Zoning Bylaw amendments consistent with the intent of Consideration #1. The Committee further requests that the Planning Board authorize the distribution of these problems and issues, and policy considerations to the applicable boards and departments within Town.

Noise & Outdoor Lighting Study Committee

Facilities Maintenance Department's (FMD) Comments on Regulations & Policy Considerations

FMD is committed to the principles of good design practices in attenuation of outdoor noise and light nuisance in general. In all of our maintenance and capital improvement projects we pay particular attention to improvement of existing conditions for our building users and abutters. We have a skilled staff holding professional licenses and accreditations in various building trades and disciplines, and we are committed to bringing our design expertise, experience, and capability in innovation to influence the design of all exterior lighting and building systems in positive support of the Town policy.

We are continually studying innovations in lighting technology and striving to incorporate best practices in our decision making in this rapidly changing field. While energy efficiency improvements underlie this process, for any proposed changes in existing lighting we evaluate criteria including optimal layout and spacing of fixtures without over-lighting, use of cutoff fixtures to avoid light trespass, color rendering index and temperature, uniformity, consistency, and glare reduction. We believe these values reflect many of the goals the committee has identified to avoid light pollution.

Since its inception in 2012, FMD has been aggressively accomplishing a significant backlog of deferred maintenance and capital projects. We've done this with our talented staff, proper planning and using varied and creative approaches to meet myriad public procurement regulations. The projects that we've completed, including numerous exterior lighting replacement projects, were successful, within budget and on schedule. As a result, our customers (school, police, library, fire recreation, Town Hall) have benefitted from significantly improved building conditions. In light of our strong in-house capabilities and ever challenging work load and corresponding schedule implications, FMD would be concerned with any additional review and permitting requirements, and would not be in favor of adding additional steps for approval of maintenance and repairs. (Whenever feasible,) FMD will endeavor to support all aspects of Town policy as we have done for since we started operations in 2012. For more significant projects requiring review, such as "major projects" defined under Town bylaws, we request a streamlined review process, so as not to impede our progress. For example, we would prefer to submit plans when reviews are required in written form rather than to present at evening hours after our regular work day. It's important to note that while FMD has a significant capital planning role, our design/construction work is almost exclusively limited to maintenance projects and must be under \$100,000 in cost, or the Permanent Building Committee manages these projects.

The FMD would welcome the opportunity to discuss any proposed changes to bylaws with the committee.